



FREDERICK COUNTY GOVERNMENT

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May 5, 2014

IFB# 14-069-CP

New Design Water Treatment Plant 1

Replacement of Butterfly Valve Motor Actuators and Integration with Plant Controls

Addendum No. 1

This addendum contains revisions, clarifications, and information pertinent to the bid documents of the referenced project and shall supplement, amend, and become part of the procurement documents for the title project and contract. All bids shall be based on this Addendum, in accordance with the bid documents.

This Addendum consists of this sheet, pre-bid conference sign-in sheets and responses to questions.

Acknowledgment of this addendum shall be made on the Proposal Form, including addendum number and date. Failure to acknowledge addendum may subject the bidder to disqualification.

Contractors that did not attend the mandatory pre-bid conference will not be eligible for award of a contract.

Bids will be received until 3:00 PM local time, May 15, 2014.

Except as noted herein, all terms and conditions of the document referenced, as heretofore changed, remain unchanged and in full force and effect.

Tim Kepp, Project Manager

BIDDER QUESTIONS

Question 1: Are additional site visits possible?

Response: Yes, please contact contact Mike Uphold at 301-600-3450 or in his absence Ken Orndorff at 301-600-2186.

Question 2: Does the owner want any of the old equipment to be removed?

Response: The owner shall retain one of the four filter control consoles. Contractor shall dispose of the other consoles.

Question 3: Is there a schedule of valves?

Response: Yes, the schedule is attached.

Question 4: Please confirm whether a building permit has been obtained from the County. If the Contractor is required to obtain the permit will it be at no cost?

Response: A building permit has not been obtained. Contractor is responsible for obtaining all necessary permits and their associated cost.

Question 5: Please confirm that an inspector's trailer is not required to be furnished by the contractor as detailed in the standard specifications?

Response: There is no inspector's trailer required for this job.

Question 6: Please confirm that a project sign is not required to be furnished by the contractor as detailed in the standard specifications?

Response: There is no sign required for this project.

Question 7: Please confirm if builders risk insurance will be provided by the owner or contractor?

Response: The contractor shall obtain Builders Risk or Installation Floater policy with "All Risk" coverage with 100% of materials associated with the job.

Question 8: In Section 15100 – VALVE OPERATORS AND ELECTRIC VALVE ACTUATORS --- There is reference on several occasions to a valve schedule in Section 15060 SCHEDULES; apparently to show which valves are Open/Close or are Modulating. Section 15060 is not part of our specifications.

Response: Section 15060 is actually a pipe schedule. The reference to this schedule is due to the pressures which the actuator must work against. The determination on which valves modulate can be found with Section 17500 Description of Operation.

Question 9: Please clarify the list of manufacturers for the electric valve actuators.

Response: Four manufacturers were listed in Section 2.03; however, actuators manufactured by Rotork and Limitorque appear as a strikeout. The names of these two manufacturers should not have appeared in the text of the specification. This should not be interpreted that the County has an issue with either manufacturer. This was strictly an owner preference due to operational experience with the actuators at the facility manufactured by AUMA and EIM Controls. The Contractor shall provide all actuators from the same manufacturer.

Question 10: Several documents listed in article 5A. of the Information to Bidders are missing from the contract documents (Affirmative Action Data Form, Joint Venture Eligibility Form, and Non-Collusion Certification). Please confirm that these forms do not need to be included with the bid or please provide the forms.

Response: The missing documents are attached.

Question 11: . Please confirm that all qualification information referenced in article 7E. of the Information to Bidders is not required to be submitted with the bid and that the contractor will provide this information if specifically requested by the Owner.

Response: The intent of the last paragraph in article 7.E is to request the qualification information from the firm that submits the lowest responsive bid; however, the owner may request the all information specified in article 7.E.

Question 12: Are new electrical disconnect switches required to be furnished and installed?

Response: We are not aware that any electrical disconnects are a part of this work.

Question 13: Will the Water Plant be able to be placed back online and turned on in order to facilitate the Field Testing requirements as listed in the specification 15100?

Response: We will use a hydrant and provide water so the system may be tested.

Question 14: The actuator specification does not call for a Non-Intrusive actuator and we would normally quote an actuator with our traditional motor controls (Intrusive). However after visiting the treatment plant and seeing many AUMA actuators that have our Non-Intrusive motor controls, is there a preference ?

Response: There is no preference or requirement beyond that of the specification

Question 15: Section E.1.G - says there are two Backwash Control Valves. The valve list only calls for 1 ?

Response: There is only one.

Addendum No. 1

- 1.) *Question 16:* Section E.3.a - mentions that there are disconnects at each existing actuator. Do we need to provide disconnects integral to the actuators or are the disconnects existing and external ?

Response: There are no existing disconnects. An integral disconnect is acceptable.

CLARIFICATIONS/ADDITIONS

There are no valves to be furnished and installed as a part of this contract.

Remove Section 17500 in its entirety and replace with Section 17500 included with the Addendum 1.

The supply, installation, and integration of a four ultrasonic transducers shall be a part of this contract. They are to be installed one each for the four filter cells in Plant 1. Full integration with filter console and filter PLC is required. Contractor shall mount transducer on stainless steel bracket and anchor to concrete wall of filter cell within reach of an operator. Detail of mounting bracket and method of fastening to be submitted to Frederick County prior to installation for approval.

All inputs and outputs shall be carried through between the actuator, Filter Console (PLC) and the PLC-OP. In other words, everything the operator can see or control at the Filter Console (PLC) should be also seen and controlled from the PLC-OP.

ATTACHMENTS

1. New Design Road Plant One Filter Valve Sizes [Schedule of valves]
2. Pipe and Pipe Fitting Schedule
3. Revised Section 17500 (pages 15 to 23)
4. Page 17300-6
5. Attendance Sheet for Mandatory Pre-Proposal Conference
6. Affirmative Action Data Form
7. Joint Venture Eligibility Form
8. Non-Collusion Certification
9. Certificate of Compliance with Frederick County Purchasing Regulation 1-2-36
10. Valve Spec Sheets

End of Addendum #1

New Design Road Plant One Filter Valve Sizes

Valve Tag Name

Part Number

Serial Number

Valve Size

Filter 1

BFV-2 Filter Influent	1993447	F08366107	18"
BFV-3 Filter Effluent	1993424	F08366105	12"
BFV-5 Filter Wash Water Supply	1993476	F08366108	20"
BFV-7 Wash Water Drain	N/A	N/A	20"
BFV-13 Surface Wash Supply	1993401	F08366103	6"

Filter 2

BFV-2 Filter Influent	1993447	F08366107	18"
BFV-3 Filter Effluent	1993424	F08366105	12"
BFV-5 Filter Wash Water Supply	1993476	F08366108	20"
BFV-7 Wash Water Drain	N/A	N/A	20"
BFV-13 Surface Wash Supply	1993401	F08366103	6"

Filter 3

BFV-2 Filter Influent	1993447	F08366107	18"
BFV-3 Filter Effluent	1993424	F08366105	12"
BFV-5 Filter Wash Water Supply	1993476	F08366108	20"
BFV-7 Wash Water Drain	N/A	N/A	20"
BFV-13 Surface Wash Supply	1993401	F08366103	6"

Filter 4

BFV-2 Filter Influent	1993447	F08366107	18"
BFV-3 Filter Effluent	1993424	F08366105	12"
BFV-5 Filter Wash Water Supply	1993476	F08366108	20"
BFV-7 Wash Water Drain	N/A	N/A	20"
BFV-13 Surface Wash Supply	1993401	F08366103	6"

Backwash Supply Valve

BFV-4 Backwash Water Rate Control	1993499	F08366109	20"
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All Valves are Henry Pratt Model 2F11

ADDENDUM 1
14-069-CP

PIPE AND PIPE FITTING SCHEDULE

SERVICE	DIAMETER RANGE (INCHES)	SUBMERGED OR BURIED	PIPE MATERIAL	JOINT TYPE	MATERIAL	FITTING JOINT TYPE	MEDIUM	TESTING PRESSURE PSIG	GRAVITY OR PRESSURE	NOTES
PLANT WATER	>3"	INTERIOR EXPOSED	DI (CI 53)	FL	DI	FL	WATER	150	PRESSURE	Restraint system design pressure shall be 200 psig min
	3"	INTERIOR BURIED	Cu (Type K)	S	Cu	S	WATER	150	PRESSURE	Restraint system design pressure shall be 200 psig min
	3"	INTERIOR BURIED	DI (CI 51)	RJ	DI	RJ	WATER	150	PRESSURE	Restraint system design pressure shall be 200 psig min
NON-POTABLE WATER		INTERIOR BURIED	PVC (Sch. 80)	SW	PVC (Sch. 80)	SW	WATER	150	PRESSURE	
		INTERIOR BURIED	PVC (Sch. 80)	SW	PVC (Sch. 80)	SW	WATER	150	PRESSURE	
		EXPOSED	CPVC (Sch. 80)	SW	CPVC (Sch. 80)	SW	WATER	150	PRESSURE	Insulate per 15290; Heat trace per 15016
TEMPERED WATER		INTERIOR EXPOSED	Cu (Type K)	S	Cu	S	WATER	150	PRESSURE	Insulate per 15290; Heat trace per 15016
		INTERIOR EXPOSED	Cu (Type K)	S	Cu	S	WATER	150	PRESSURE	Insulate per 15290; Heat trace per 15016
SUMP PUMP DISCHARGE		INTERIOR EXPOSED	PVC (Sch. 80)	SW	PVC (Sch. 80)	SW	WATER	20	PRESSURE	
		EXPOSED	PVC (Sch. 80)	SW	PVC (Sch. 80)	SW	WATER	20	PRESSURE	
		*** Chemical Sump Pump Discharge Piping shall match the piping used for conveying the particular chemical solution ***								
UV DISINFECTION PIPING		INTERIOR	316 SS	FL	316 SS	FL	WATER		PRESSURE	Limits of stainless steel piping shall be as shown on the Drawings
		INTERIOR	DI (CI 53)	FL	DI	FL	WATER		PRESSURE	
FIRE PROTECTION SYSTEM PIPING		INTERIOR	Black Steel	Mechanical Grooved	Black Steel	Mechanical Grooved	WATER	150	PRESSURE	Restraint system design pressure shall be 200 psig min; Refer to Specifications Section 15300 for pipe class requirements
SETTLED SOLIDS PUMP DISCHARGE		INTERIOR BURIED	DI (CI 53)	FL	DI	FL	WATER	35	PRESSURE	Restraint system design pressure shall be 75 psig min
			DI (CI 51)	RJ	DI	RJ	WATER	35	PRESSURE	Restraint system design pressure shall be 75 psig min
THICKENER INFLUENT		EXPOSED	DI (CI 53)	FL	DI	FL	WATER	35	PRESSURE	Restraint system design pressure shall be 75 psig min; Insulate per 15290; Heat trace per 15016
		BURIED	DI (CI 51)	RJ	DI	RJ	WATER	35	PRESSURE	Restraint system design pressure shall be 75 psig min
		IN-TANK	CS	W/F	CS	W/F	WATER	35	PRESSURE	Restraint system design pressure shall be 75 psig min; Limits of carbon steel piping shall be as shown on the Drawings
THICKENER SUPERNATANT		BURIED	DI (CI 51)	RJ	DI	RJ	WATER	25	GRAVITY	
THICKENED SOLIDS		INTERIOR BURIED	DI (CI 53)	FL	DI	FL	WATER	25	GRAVITY	
			DI (CI 51)	RJ	DI	RJ	WATER	25	GRAVITY	
SOLIDS TRANSFER PUMP DISCHARGE		INTERIOR BURIED	DI (CI 53)	FL	DI	FL	WATER	100	PRESSURE	Restraint system design pressure shall be 200 psig min
			DI (CI 51)	RJ	DI	RJ	WATER	100	PRESSURE	Restraint system design pressure shall be 200 psig min
PROCESS DRAIN PIPING		INTERIOR EXPOSED	DI (CI 53)	FL	DI	FL	WATER	25	GRAVITY	
			DI (CI 51)	RJ	DI	RJ	WATER	25	GRAVITY	
EQ BASIN PUMP DISCHARGE TO LAGOON INFLUENT METERING AND CHEMICAL FEED VAULT CAUSTIC		INTERIOR BURIED	DI (CI 53)	FL	DI	FL	WATER	46	PRESSURE	Restraint system design pressure shall be 100 psig min
		BURIED	DI (CI 51)	RJ	DI	RJ	WATER	46	PRESSURE	Restraint system design pressure shall be 100 psig min
FLOCCULANT AID POLYMER		INTERIOR EXPOSED / INTERIOR EXPOSED	PVC (Sch. 80) Flexible Tubing	SW	PVC (Sch. 80) Lined Steel	SW	WATER		PRESSURE	Tubing will be run inside 6" PVC electrical conduit
		EXPOSED	CPVC (Sch. 80)	SW	CPVC (Sch. 80) Lined Steel	SW	WATER		PRESSURE	Insulate per 15290; Heat trace per 15016
		EXPOSED / INTERIOR	CPVC (Sch. 80)	FL	CPVC (Sch. 80) Lined Steel	FL	WATER		PRESSURE	Bulk storage tank fill piping; refer to 15060 for lining material
		INTERIOR EXPOSED	PVC (Sch. 80)	SW	PVC (Sch. 80) Lined Steel	SW	WATER	30	PRESSURE	
		EXPOSED	Flexible Tubing	N/A	N/A	FL	WATER	30	PRESSURE	Bulk storage tank fill piping; refer to 15060 for lining material
		EXPOSED	CPVC (Sch. 80)	SW	CPVC (Sch. 80)	SW	WATER	30	PRESSURE	Tubing will be run inside 6" PVC electrical conduit
SLUDGE CONDITIONING POLYMER		INTERIOR BURIED	PVC (Sch. 80) Flexible Tubing	SW	PVC (Sch. 80) Lined Steel	SW	WATER	50	PRESSURE	Insulate per 15290; Heat trace per 15016
			Flexible Tubing	N/A	N/A	N/A	WATER	50	PRESSURE	Tubing will be run inside 6" PVC electrical conduit

PIPE AND PIPE FITTING SCHEDULE

SERVICE	DIAMETER RANGE (INCHES)	SUBMERGED OR BURIED OR EXPOSED	PIPE		JOINT TYPE	FITTING MATERIAL	JOINT TYPE	TESTING MEDIUM	PRESSURE PSIG	GRAVITY OR PRESSURE	NOTES
			MATERIAL	PIPE							
POWDERED ACTIVATED CARBON		INTERIOR	PVC Tubing (see Section 15060)		SW	N/A	N/A	WATER	30*	PRESSURE	Insulate per 15290; Heat trace per 15016.
		BURIED	PVC Tubing (see Section 15060)		SW	N/A	N/A	WATER	30*	PRESSURE	Tubing will be run inside 6" PVC electrical conduit
		EXPOSED	CPVC (Sch. 80)		SW	CPVC (Sch. 80)	SW	WATER	30*	PRESSURE	Insulate per 15290; Heat trace per 15016
ORTHOPHOSPHATE		INTERIOR	PVC (Sch. 80)		SW	PVC (Sch. 80)	SW	WATER		PRESSURE	Bulk storage tank fill piping; refer to 15060 for lining materials
		EXPOSED / INTERIOR	FL		FL	N/A	N/A	WATER		PRESSURE	Tubing will be run inside 6" PVC electrical conduit
		BURIED	PVC (Sch. 80)		SW	PVC (Sch. 80)	SW	WATER		PRESSURE	Insulate per 15290
PRIMARY COAGULANT		INTERIOR	PVC (Sch. 80)		SW	PVC (Sch. 80)	SW	WATER		PRESSURE	Bulk storage tank fill piping; refer to 15060 for lining materials
		EXPOSED	Flexible Tubing		N/A	N/A	N/A	WATER		PRESSURE	Insulate per 15290
		EXPOSED / INTERIOR	PVC (Sch. 80)		FL	Lined Steel	FL	WATER		PRESSURE	Bulk storage tank fill piping; refer to 15060 for lining materials
FLUORIDE		INTERIOR	PVC (Sch. 80)		SW	PVC (Sch. 80)	SW	WATER		PRESSURE	Bulk storage tank fill piping; refer to 15060 for lining materials
		EXPOSED / INTERIOR	FL		FL	N/A	N/A	WATER		PRESSURE	Insulate per 15290
		BURIED	CPVC (Sch. 80)		SW	CPVC (Sch. 80)	SW	WATER		PRESSURE	Insulate per 15290; Heat trace per 15016
SULFURIC ACID		INTERIOR	HALAR		W	HALAR	W	WATER		PRESSURE	See Drawings for limits of teflon-lined stainless steel pipe
		EXPOSED / INTERIOR	Flexible Tubing		FL	Lined Steel	FL	WATER		PRESSURE	Bulk storage tank fill piping; refer to 15060 for lining materials
		BURIED	HALAR		N/A	HALAR	N/A	WATER		PRESSURE	Tubing will be run inside 6" PVC electrical conduit
SODIUM BISULFITE		INTERIOR	PVC (Sch. 80)		SW	PVC (Sch. 80)	SW	WATER	75	PRESSURE	Insulate per 15290; Heat trace per 15016
		BURIED	Flexible Tubing		N/A	N/A	N/A	WATER	75	PRESSURE	Tubing will be run inside 6" PVC electrical conduit. Restraint system design pressure shall be 150 psig min.
		EXPOSED	CPVC (Sch. 80)		SW	CPVC (Sch. 80)	SW	WATER	75	PRESSURE	Insulate per 15290; Heat trace per 15016. Restraint system design pressure shall be 150 psig min.
POTASSIUM PERMANGANATE		INTERIOR	PVC (Sch. 80)		SW	PVC (Sch. 80)	SW	WATER		PRESSURE	Bulk storage tank fill piping; refer to 15060 for lining materials
		EXPOSED	Flexible Tubing		N/A	N/A	N/A	WATER		PRESSURE	Tubing will be run inside 6" PVC electrical conduit
		BURIED	CPVC (Sch. 80)		SW	CPVC (Sch. 80)	SW	WATER		PRESSURE	Insulate per 15290; Heat trace per 15016
SERVICE AIR		INTERIOR	Carbon Steel (Sch. 40)		S	Carbon Steel (Sch. 40)	S	AIR	125	PRESSURE	Restraint system design pressure shall be 350 psig min.

* CONTRACTOR SHALL NOT EXCEED PVC TUBING MANUFACTURER'S REQUIRED MAXIMUM WORKING PRESSURE.

A. PLANT 1 FILTERS

1. General Description

- a. Four (4) existing filters are located in the Plant 1 Filter Building to filter the settled water discharged from the Plant 1 Sedimentation Basins. The filters are designated as Filters No. 1, No. 2, No. 3 and No. 4. Each filter has a gravel and sand media.
- b. Settled water will be piped from the Plant 1 Sedimentation Basins to a common settled water channel located inside the Plant 1 Filter Building. An existing level transmitter monitors the water level in the channel. The level transmitter outputs a 4-20mA analog signal proportional to the water level to PLC-OP
- c. Water from the settled water channel will be piped into each filter where it will filter down through the filter media to the filter underdrain. The filtered water will then flow out the filter effluent pipe to a common effluent line which will convey the water to the Filter Clearwell.
- d. Five electrically operated butterfly valves are provided on the piping to each filter to control the filtering and backwash operation. The valves will be designated as follows:
 - (1) Filter Influent Valve – Located on influent line from the settled water channel
 - (2) Filter Effluent Valve – Located on the filter effluent line
 - (3) Surface Wash Valve – Located on the surface wash line to the filter
 - (4) Backwash Valve – Located on the backwash line to the filter
 - (5) Drain Valve – Located on the drain line to the Backwash EQ Basin
- e. An existing rate of flow controller will be provided on each filter effluent line. The rate of flow controller will be utilized to control the water flow through the filter and will consist of a venturi flow meter and a modulating butterfly valve. The high and low pressure taps of the venturi meter are piped to a differential pressure transmitter which is mounted in the filter pipe gallery. The pressure transmitter will measure the differential pressure produced by the venturi meter, and will output a corresponding 4-20mA signal proportional to the filter effluent flow to the Filter PLC.
- f. An existing turbidimeter is provided for each filter to monitor the turbidity of the filter effluent. The turbidimeters are wall mounted in the filter pipe gallery. Each turbidimeter will output a 4-20mA signal proportional to the effluent turbidity to the PLC in the corresponding filter control panel.
- g. Backwash water for backwashing the Plant 1 filters will be provided from the Plant 1 Finished Water Storage Tank. A main backwash water line will be run from the storage tank to the Plant 1 Filter Building. Individual backwash water lines will be piped from the main backwash line to the filters. A backwash rate of flow controller will be provided on each of the two backwash pipes. Each rate of flow controller will be utilized to control the backwash flow rate and will consist of a venturi flow meter

and a modulating butterfly valve. The high and low pressure taps of the venturi meter will be piped to a differential pressure transmitter which will be wall mounted in the filter pipe gallery. The pressure transmitter will measure the differential pressure produced by the venturi meter, and will output a corresponding 4-20mA signal proportional to the backwash flow to PLC-FB.

- h. An existing loss of head differential pressure transmitter is installed at each filter to measure the head loss through the filter. The loss of head transmitters will be wall mounted in the filter pipe gallery. Each transmitter will output a 4-20mA signal proportional to the filter head loss to the Filter PLC.

2. Filter Control Panels

FILTER CONTROL PANEL SUPPLIED BY OWNER

- a. The existing Filter Control Panel for each filter will be removed and replaced with a new Filter Control Panel. The Filter Control Panel will control the flow rate through the filter, and the filter backwash sequence. Each control panel will be floor mounted in the filter gallery of the Plant 1 Filter Building in front of the filter that the panel serves. Each Filter Control Panel will house the following:
 - (1) Main Circuit Breaker
 - (2) Control Circuit Breakers
 - (3) Allen-Bradley CompactLogix PLC (Filter PLC)
 - (4) Operator Interface Terminal (Touch Screen)
 - (5) 4-Port Ethernet Switch
 - (6) 24vdc Power Supplies
 - (7) Control Relays
- b. The operator interface terminal on each filter control panel shall be programmed to enable the filter valves, filter effluent rate of flow controllers, and backwash rate of flow controllers to be controlled either automatically or manually via the operator interface.
- c. The following information shall be displayed on each operator interface:
 - (1) Position of Filter Valves
 - (2) Filter Effluent Rate of Flow Control Valve Position
 - (3) Filter Effluent Flow
 - (4) Filter Effluent Turbidity
 - (5) Filter Loss of Head
 - (6) Filter Backwash Rate of Flow Control Valve Position
 - (7) Filter Backwash Flow

3. Filter Influent, Effluent, Surface Wash, Backwash, and Drain Valve Actuator Controls

- a. The existing valve actuators for the filter influent, effluent, surface wash, backwash and drain valves house the following electrical controls:
 - (1) Disconnect Switch
 - (2) Reversing Contactor
 - (3) Control Transformer

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- (4) Local/Off Remote Selector Switch
- (5) Open/Stop/Close Push Buttons
- (6) Open and Closed Position Indication Lights
- (7) Valve Position Indication Limit Switches

- b. Each filter valve will be controlled by the local/off/remote selector switch located on the valve actuator. When the local/off/remote switch is in the "local" position, the valve may be locally controlled by the open/stop/close push buttons located on the valve actuator or the valve control panel. When the local/off/remote switch is in the "remote" position, the valve will be remotely controlled from the Filter Control Panel.
- c. Each valve actuator will have two sets of valve open and closed position indication limit switches. One set will be wired to the open and closed position indication lights on the valve control panel, and the second set will be wired to the Filter PLC for valve position monitoring by the programmable controller.

4. Rate of Flow Control Valve Actuator Controls

- a. The new valve actuators (installed as a part of this contract) for the filter effluent rate of flow control valves and the backwash rate of flow control valves will each house the following electrical controls:
 - (1) Disconnect Switch
 - (2) Reversing Contactor
 - (3) Control Transformer
 - (4) Local/Off/Remote Selector Switch
 - (5) Open/Stop/Close Push Buttons
 - (6) Open and Closed Position Indication Lights
 - (7) Valve Positioner
 - (8) Valve Position Transmitter
 - (9) Valve Position Indication Limit Switches
- b. The valve actuator will have two sets of valve open and closed position indication limit switches. One set will be wired to the open and closed position indication lights on the valve control panel, and the second set will be wired to the Filter PLC for valve open/closed position monitoring by the programmable controller.
- c. The valve position transmitter in the valve actuator will output a 4-20mA analog signal proportional to the valve position to the Filter PLC for valve position monitoring by the programmable controller.

5. Programmable Controller Inputs and Outputs

- a. The programmable controller inputs and outputs for each filter will be wired to and from the PLC located in the Filter Control Panel.
- b. Digital Inputs (24 vdc):

<u>Description</u>	<u>Origination Point</u>
(1) Influent Valve Open	Valve Open Limit Switch in Valve Actuator

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(2)	Influent Valve Closed	Valve Closed Limit Switch in Valve Actuator
(3)	Effluent Valve Open	Valve Open Limit Switch in Valve Actuator
(4)	Effluent Valve Closed	Valve Closed Limit Switch in Valve Actuator
(5)	Surface Wash Valve Open	Valve Open Limit Switch in Valve Actuator
(6)	Surface Wash Valve Closed	Valve Closed Limit Switch in Valve Actuator
(7)	Backwash Valve Open	Valve Open Limit Switch in Valve Actuator
(8)	Backwash Valve Closed	Valve Closed Limit Switch in Valve Actuator
(9)	Drain Valve Open	Valve Open Limit Switch in Valve Actuator
(10)	Drain Valve Closed	Valve Closed Limit Switch in Valve Actuator

c. Digital Outputs (Isolated Relay, 120VAC):

	<u>Description</u>	<u>Origination Point</u>
(1)	Influent Valve Open	Valve Open Control Circuit in Valve Actuator
(2)	Influent Valve Close	Valve Close Control Circuit in Valve Actuator
(3)	Effluent Valve Open	Valve Open Control Circuit in Valve Actuator
(4)	Effluent Valve Close	Valve Close Control Circuit in Valve Actuator
(5)	Surface Wash Valve Open	Valve Open Control Circuit in Valve Actuator
(6)	Surface Wash Valve Close	Valve Close Control Circuit in Valve Actuator

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- | | | |
|------|----------------|--------------------------------------------------------|
| (7) | Backwash Valve | Valve Open Control Open
Circuit in Valve Actuator |
| (8) | Backwash Valve | Valve Close Control Close
Circuit in Valve Actuator |
| (9) | Drain Valve | Valve Open Control Open
Circuit in Valve Actuator |
| (10) | Drain Valve | Valve Close Control Close
Circuit in Valve Actuator |

d. Analog Inputs (4-20mA):

- | | <u>Description</u> | <u>Origination Point</u> |
|-----|-----------------------------------------------------------|-------------------------------------------|
| (1) | Filter Effluent
Rate of Flow Control Valve
Position | Position Transmitter
in Valve Actuator |

e. Analog Outputs (4-20mA):

- | | <u>Description</u> | <u>Destination Point</u> |
|-----|---------------------------------------------------------------------|---------------------------------------|
| (1) | Filter Effluent
Rate of Flow Control Valve
Positioning Signal | Valve Positioner in
Valve Actuator |

6. Description of Operation

- a. Each filter will normally operate in the filtering mode. When the filter is operating in this mode, the filter valves will be in the following positions:
- (1) Influent Valve will be open
 - (2) Effluent Valve will be open
 - (3) Surface Wash Valve will be closed
 - (4) Backwash Valve will be closed
 - (5) Drain Valve will be closed
- b. When a filter is operating in the filtering mode, the water flow through the filter will be controlled by the filter rate of flow controller and the Filter PLC as follows:
- (1) A PID rate of flow controller shall be programmed in each Filter PLC to control the water flow through the filter.
 - (2) PLC-OP will divide the Plant 1 influent flow by the total number of filters operating in the filtering mode to determine the flow that must be processed by each filter. The computed flow will be the flow setpoint for each rate of flow controller.

- (3) The rate of flow controller in the Filter PLC will compare the filter effluent flow, measured by the venturi flow meter, to the flow setpoint, and will output a 4-20mA positioning signal to the rate of flow control valve to open or close the valve as required to maintain the flow setpoint.
 - (4) PLC-OP will continuously monitor the water level in the settled water channel. A level setpoint shall be programmed in the PLC for the settled water channel. This setpoint will be the desired water level to be maintained in the channel. The level setpoint will be utilized to adjust the flow setpoint for the rate of flow controllers as follows:
 - (a) If the water level in the settled water channel rises above the level setpoint by a preset amount, PLC-OP shall increase the flow setpoint for each filter rate of flow controller so that more flow will be processed by each filter.
 - (b) If the water level in the settled water channel drops below the level setpoint by a preset amount, PLC-OP shall decrease the flow setpoint for each filter rate of flow controller so that less flow is processed by each filter.
 - (5) The operator interface on the filter control panel shall be programmed to enable the rate of flow control valve to be manually controlled from the operator interface.
- c. The backwashing of each filter will be initiated by one of the following:
- (1) Filter Run Time
 - (2) Filter Loss of Head
 - (3) Filter Effluent Turbidity
- d. Each Filter PLC will continuously monitor the filter run time. The filter run time shall be displayed on the operator interface located on the filter control panel as a continuously running total. A "filter run time" setpoint shall be programmed in the Filter PLC to set the number of hours the filter will operate in the filtering mode before a backwash is required. This setpoint shall be adjustable via the operator interface. When the "filter run time" setpoint is reached, a "Filter Backwash Required" alarm message shall be displayed on the operator interface, and a filter backwash required alarm shall be displayed by the HMI software.
- e. Each Filter PLC will continuously monitor the filter loss of head. A "high loss of head" setpoint shall be programmed in the Filter PLC. This setpoint shall be adjustable via the operator interface located on the filter control panel. If the filter head loss increases to this setpoint, a timer in the PLC shall be started. If this timer times out and the filter head loss is still high, a "Filter High Loss of Head" alarm message shall be displayed on the operator interface, and a high loss of head alarm shall be displayed by the HMI software.
- f. Each Filter PLC will continuously monitor the filter effluent turbidity. A "high effluent turbidity" setpoint shall be programmed in the Filter PLC. This setpoint shall be adjustable via the operator interface located on the filter control panel. If the effluent

New Design Plant 1
Replacement of Butterfly Valve Motor Actuators and Integration with Plant Controls
Contract 026K-W

turbidity increases to this setpoint, a timer in the PLC shall be started. If this timer times out and the effluent turbidity is still high, a "Filter Effluent Turbidity High" alarm message shall be displayed on the operator interface, and an effluent turbidity high alarm shall be displayed by the HMI software.

- g. When a filter backwash is required based on filter run time, or a loss of head or high turbidity alarm, the Filter PLC will automatically initiate a filter backwash as follows:
 - (1) A "filter backwash mode" auto/manual selector switch, and a "backwash start" push button shall be programmed in the operator interface located on the filter control panel. When the auto/manual switch is in the "auto" position, the operator will initiate the filter backwash by pushing the "backwash start" button. When the "backwash start" button is pushed, the automatic filter backwash sequence programmed in the Filter PLC shall be started. This sequences shall automatically backwash the filter as follows:
 - (a) The Filter PLC will close the influent valve.
 - (b) The Filter PLC will allow the filter effluent valve to remain open. The effluent valve shall remain open until the water level in the filter drains down to approximately 3' above the media to the bottom of the drain trough. This level will be sensed by transmitter ultrasonic level transducer that shall be supplied, installed and integrated as a part of this contract..
 - (c) When the filter backwash level is reached, the Filter PLC will open the backwash valve and start a low rate backwash of the filter as follows:
 - (1) A backwash flow controller shall be programmed in the Filter PLC. The desired flow for the low rate backwash have been predetermined by the operator and set in the Filter PLC. The value entered will be the flow setpoint for the backwash flow controller.
 - (2) The backwash flow controller will compare the backwash flow, measured by the backwash venturi meter, to the flow setpoint, and will output a 4-20mA positioning signal to the backwash rate of flow control valve to open or close the valve as required to maintain the flow setpoint.
 - (3) When the low rate backwash is started, a "low rate backwash" timer in the Filter PLC shall be started. This timer shall be adjustable via the operator interface. The time remaining for the "low rate backwash" shall be displayed on the operator interface.
 - (4) During low rate backwash the surface sweeps shall be initiated. The Filter PLC will open the surface wash valve and start a surface wash sequence of the filter as follows:
 - (i) The surface wash valve shall open one minutes after the low rate backwash has begun.
 - (ii) When the surface wash is started, a "surface wash" timer in the Filter PLC shall be started. This time shall be adjustable via the

New Design Plant 1
Replacement of Butterfly Valve Motor Actuators and Integration with Plant Controls
Contract 026K-W

operator interface. The timer remaining for the "surface wash" shall be displayed on the operator interface.

(iii) When the "surface wash" timer runs out, the Filter PLC will then close the surface wash valve.

(d) When the "surface wash" timer and "low rate backwash" timer times out, the Filter PLC will then perform a high rate backwash of the filter as follows:

(1) The Filter PLC will increase the backwash flow rate to a high backwash rate. The high backwash flow setpoint will have been predetermined and previously entered by the operator and set in the PLC.

(2) The backwash flow controller will compare the backwash flow, measured by the backwash venturi meter, to the high rate flow setpoint, and will output a 4-20mA positioning signal to the backwash rate of flow control valve to open or close the valve as required to maintain the flow setpoint.

(3) When the high rate backwash is started, a "high rate backwash" timer in the Filter PLC shall be started. This timer shall be adjustable via the operator interface. The time remaining for the "high rate backwash" shall be displayed on the operator interface.

(e) When the "high rate backwash" timer times out, the Filter PLC will perform a final low rate backwash of the filter at the same flow rate as the initial low rate backwash. When this low rate backwash is started, a "final low rate backwash" timer in the Filter PLC will be started. This timer shall be adjustable via the operator interface. The time remaining for the "final low rate backwash" shall be displayed on the operator interface.

(f) When the "final low rate backwash timer times out, the Filter PLC will close the filter backwash valve.

(g) When the filter backwash valve is closed, the Operator will place the filter back into service.

h. The Filter PLC will provide failure monitoring for the influent, effluent, surface wash, backwash, and drain valves as follows:

(1) When a valve gets a signal to open, a failure timer in the programmable controller will be started. If this timer times out and the valve is not open, a "Valve Failed to Open" alarm message shall be displayed on the operator interface located on the filter control panel, and a valve failed to open alarm shall be displayed by the HMI software.

(2) When a valve gets a signal to close, a failure timer in the programmable controller will be started. If this timer times out and the valve has not reached the closed position, a "Valve Failed to Close" alarm message shall be displayed by the operator interface located on the filter control panel, and a valve failed to close alarm shall be displayed by the HMI software.

7. Plant 1 Filter Alarms

Replacement of Butterfly Valve Motor Actuators and Integration with Plant Controls
New Design Plant 1
Contract 026K-W

- a. The following alarms for the Plant 1 Filters shall be displayed and logged by the HMI software:

- (1) Influent Valve Failed to Open
- (2) Influent Valve Failed to Close
- (3) Effluent Valve Failed to Open
- (4) Effluent Valve Failed to Close
- (5) Surface Wash Valve Failed to Open
- (6) Surface Wash Valve Failed to Close
- (7) Backwash Valve Failed to Open
- (8) Backwash Valve Failed to Close
- (9) Drain Valve Failed to Open
- (10) Drain Valve Failed to Close
- (11) Filter Backwash Required
- (12) Filter Effluent Turbidity High
- (13) Filter Loss of Head High
- (14) Settled Water Channel Low Level
- (15) Settled Water Channel High Level

10. Provide a calibration data sheet for each pressure transmitter.
11. The pressure transmitters shall be Rosemount Model 3051T, or Foxboro Model IMT25.

SCHEDULE OF PRESSURE TRANSMITTERS

<u>Location</u>	<u>Range</u>	<u>Service</u>
Plant 2 Filter Building UV Area	0 - 50 feet	Plant 2 Finished Water Storage Tank Level
Plant 2 High Service Pump Station	0 - 50 feet	Plant 2 Finished Water Storage Tank Level
Plant 2 High Service Pump Station	0 - 200 psi	Plant 2 Finished Water Pump Discharge Pressure

E. Ultrasonic Level Transmitters:

1. Ultrasonic level transmitters shall be compact transmitters suitable for non-contact level measurement of liquids in tanks.
2. The transmitter shall be a true 2-wire device with 24 volt DC power being derived from the control panel power supply. The electronic unit shall be of modular plug in design utilizing integrated circuitry. The transmitter output shall be a linear 4-20mA dc signal.
3. The transmitter shall be furnished with an integral LC display.
4. Coordinate installation of each level transmitter with the process tank that it is being mounted in. Provide all required mounting brackets, flanges and hardware necessary for a complete installation. The transmitters mounted on the chemical storage tanks shall be flange mounted.
5. The ultrasonic level transmitters shall be Endress & Hauser Prosonic M FMU.

SCHEDULE OF ULTRASONIC LEVEL TRANSMITTERS

<u>Location</u>	<u>Service</u>
Plant 2 Filter Building	Filter No. 5 Level
Plant 2 Filter Building	Filter No. 6 Level
Plant 2 Filter Building	Filter No. 7 Level

April 24, 2014

ITB #14-069-CP

New Design Water Treatment Plant 1

Replacement of Butterfly Valve Motor Actuators & Integration with Plant Controls

Mandatory Pre-Bid Conference & Site Visit

10:00 AM, Local Time

New Design Water Treatment Plant

850 New Design Road, Tuscarora, MD 21790

FIRM NAME: Conewago Enterprises Inc

Representative: Randy Amoss

Address: Hanover PA

Email Address: ramoss@conewago.com

Phone No.: 717-632-7722

FAX No.: 717-632-8665

FIRM NAME: Field Enterprises LLC

Representative: George Glatte

Address: 19132 Valley Overlook Ct Knoxville MD 21758

Email Address: gglatte@gmail.com

Phone No.: 240 626 4310

FAX No.:

FIRM NAME: ~~TED ORTMAN SR.~~ ACE SERVICE

Representative: TED ORTMAN JR.

Address: 1002 WEST ST. Laurel MD.

Email Address: TED.ORTMAN@aceservinc.com

Phone No.: 443-367-1619

FAX No.: 301 496 9181

FIRM NAME: Emt ENV.

Representative: ALEX VITIC

Address: 3060 ROUTE #97, Suite 216, GLENWOOD MD 21738

Email Address: av@emhenviro.com

Phone No.: 410-489-9630

FAX No.: 410-489-9925

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April 24, 2014

ITB #14-069-CP

New Design Water Treatment Plant 1

Replacement of Butterfly Valve Motor Actuators & Integration with Plant Controls

Mandatory Pre-Bid Conference & Site Visit

10:00 AM, Local Time

New Design Water Treatment Plant

850 New Design Road, Tuscarora, MD 21790

FIRM NAME: Johnston Construction

Representative: Sunil Desai

Address: 4331 Fox Run Rd Dover PA

Email Address: sd@jcc-xi.com

Phone No.: 717-292-3606 FAX No.:

FIRM NAME: NORAIR ENGINEERING Corp

Representative: ED PAYSON

Address: 337 BRIGHTSEAT RD SUITE 200 LANDOVER MD 20875

Email Address: E.PAYSON@NORAIR.COM

Phone No.: 301-494-2202 FAX No.: 301-499-1342

FIRM NAME: AMERICAN CONTRACTING + ENVIRONMENTAL SERVICES INC

Representative: Tom Thorpe

Address: 1002 WEST ST. LAUREL MD 20707

Email Address: TOM.THORPE@ACESERVINC.COM

Phone No.: 301-490-9100 FAX No.: 301-490-9101

FIRM NAME: MVE INC

Representative: DAVE MYERS

Address: 1925 FREDERICK PK LITTLESTOWN PA 17340

Email Address: D.MYERS@MONARCHYVALLEYELECTRIC.COM

Phone No.: 717 359 9500 x32 FAX No.: 717 359 4238

April 24, 2014

ITB #14-069-CP

New Design Water Treatment Plant 1

Replacement of Butterfly Valve Motor Actuators & Integration with Plant Controls

Mandatory Pre-Bid Conference & Site Visit

10:00 AM, Local Time

New Design Water Treatment Plant

850 New Design Road, Tuscarora, MD 21790

FIRM NAME:

OPP Construction

Representative:

STEVE GULLY

Address:

362 B Christopher Ave GAITHERSBURG MD 20877

Email Address:

SGULLY@OPPCONSTRUCTION.COM

Phone No.:

301-355-7692

FAX No.:

301-355-7694

FIRM NAME:

Representative:

Address:

Email Address:

Phone No.:

FAX No.:

FIRM NAME:

Representative:

Address:

Email Address:

Phone No.:

FAX No.:

FIRM NAME:

Representative:

Address:

Email Address:

Phone No.:

FAX No.:

April 24, 2014

ITB #14-069-CP

New Design Water Treatment Plant 1

Replacement of Butterfly Valve Motor Actuators & Integration with Plant Controls

Mandatory Pre-Bid Conference & Site Visit

10:00 AM, Local Time

New Design Water Treatment Plant

850 New Design Road, Tuscarora, MD 21790

FIRM NAME: PSI PUMPING SOLUTIONS INC

Representative: WAYNE GALLOWAY

Address: 8506 CARLISLE PIKE YORK SPRING, PA

Email Address: EVERYONE@PUMP502.COM

Phone No.: 717-259-5779

FAX No.:

FIRM NAME:

Representative:

Address:

Email Address:

Phone No.:

FAX No.:

FIRM NAME:

Representative:

Address:

Email Address:

Phone No.:

FAX No.:

FIRM NAME:

Representative:

Address:

Email Address:

Phone No.:

FAX No.:

COUNTY OF FREDERICK
AFFIRMATIVE ACTION DATA FORM

The County of Frederick has established a program to ensure equal opportunity in its project bidding. We are asking you to help us in this effort by completing the Applicant Affirmative Action Data Form below. Completing the Data Form will assist us in monitoring the effectiveness of our program. THIS FORM WILL BE FILED SEPARATELY FROM YOUR BID PROPOSAL AND WILL NOT BE USED TO DISCRIMINATE IN ANYWAY IN THE PROJECT BIDDING OR AWARD PROCESS. The completion of this form is required for your participation and consideration.

1. PROJECT: _____

2. DATE: _____

3. NAME OF BIDDER: _____

4. TYPE OF BUSINESS ENTITY:

- a. _____ Individual
- b. _____ Sole Partnership
- c. _____ General Partnership
- d. _____ Limited Partnership
- e. _____ Limited Liability Company
- f. _____ S-Corporation
- g. _____ C-Corporation
- h. _____ Professional Corporation

5. PERCENTAGE OF OWNERSHIP INTEREST (i.e., 1% - 100%)

a. Based on Ethnic Origin:

- 1. _____ % White
- 2. _____ % Black/African-American
- 3. _____ % Hispanic
- 4. _____ % Asian
- 5. _____ % American Indian or Alaska Native

b. Based on Gender:

- 1. _____ % Male
- 2. _____ % Female

Note: Ethnic origin is defined by the Federal Equal Employment Opportunity Commission as follows:

American Indian or Alaskan Native: All Persons having origins in any of the original peoples of North America and who maintain cultural identification through tribal affiliations or community recognition.

Asian or Pacific Islanders: All Persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent or the Pacific Islands. The area includes, for example, China, Japan, Korea, the Philippine Islands and Samoa.

Black: (Not of the Hispanic Origin) All Persons having origin in any of the black racial groups of Africa.

Hispanic: All Persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race.

White: (Not of the Hispanic Origin) All Persons having origins in any of the original peoples of Europe, North Africa or the Middle East.

6. HOW DID YOU LEARN OF THE PROJECT FOR WHICH YOU ARE SUBMITTING A BID?

- a. _____ Walk-in
- b. _____ Newspaper Advertisement
- c. _____ Cable Television Announcement
- d. _____ Posted Announcement
- e. _____ Other -- Explain:

**SCHEDULE A: INFORMATION FOR DETERMINING
JOINT VENTURE ELIGIBILITY**

(This form needs to be filled in if all Joint Venture forms are minority owed).

1. Name of Joint Venture: _____
2. Address of Joint Venture: _____
3. Phone No. of Joint Venture: _____
4. Identify the firms which comprise the Joint Venture (the DBE Partner must be State certified or certified by Frederick County).

A. Describe the role of the DBE firm in the Joint Venture:

B. Describe very briefly the experience and business qualifications of each non- DBE Joint Venture:

5. Nature of the Joint Venture's Business: _____
6. Provide a copy of the Joint Venture Agreement
7. What is the claimed percentage of DBE ownership? _____
8. Ownership of Joint Venture: (This need not be filled in if described in the Joint Venture Agreement, provided by Question 6):
 - A. Profit and loss sharing
 - B. Capital contributions, including equipment
 - C. Other applicable ownership interests

9. Control of and participation in this contract. Identify by name, race, sex, and firm those individuals (and their titles) who are responsible for day-to-day management and policy decision-making, including, but not limited to, those with prime responsibility for:

A. Final Decisions _____

B. Management Decisions, such as:

1. Estimating _____

2. Marketing and Sales _____

3. Hiring and firing of Management Personnel _____

4. Purchases of Major Items or Supplies _____

C. Supervision of Field Operations _____

Note: If, after filing this Schedule A and before the completion of the Joint Venture's work on the contract covered by this regulation, there is any significant change in the information submitted, the Joint Venture must inform the Grantee, either directly or through the prime contractor if the Joint Venture is a subcontractor.

**SCHEDULE A: INFORMATION FOR DETERMINING
JOINT VENTURE ELIGIBILITY**

AFFIDAVIT

“The undersigned swear that the foregoing statements are correct and include all material information necessary to identify and explain the terms and operation of our joint venture and the intended participation by each joint venture in the undertaking. Further, the undersigned covenant and agree to provide to the grantee current, complete and accurate information regarding actual joint venture work on the payment therefore and any proposed changes in any of the joint adventure arrangements and to permit the audit and examination of the books, records and files of the joint venture, or those of joint venture relevant to the joint venture, by authorized representatives of the grantee or the federal funding agency. Any material misrepresentation will be grounds for terminating any contract which may be awarded and for initialing action under federal or state laws concerning false statements.”

Name of Firm

Name of Firm

Signature

Signature

Name

Name

Title

Title

Date

Date

**SCHEDULE A: INFORMATION FOR DETERMINING JOINT VENTURE
ELIGIBILITY**

State of _____, County of _____

On this _____ day of _____, 20_____, before me appeared
known, who, being duly sworn, did execute the foregoing affidavit, and did state that he or she was
properly authorized by _____

(Name of Firm)

to execute the affidavit and did so as his or her free act and deed.

Seal

Notary Public

My Commission Expires: _____

State of _____, County of _____

On this _____ day of _____, 20_____, before me appeared
known, who, being duly sworn, did execute the foregoing affidavit, and did state that he or she was
properly authorized by _____

(Name of Firm)

to execute the affidavit and did so as his or her free act and deed.

Seal

Notary Public

My Commission Expires: _____

NON-COLLUSION CERTIFICATION

The Department of Purchasing requests as a matter of policy that any firm receiving a contract or award from Frederick County, Maryland, shall make certification as below. Receipt of such certification, under oath, shall be a prerequisite to the award of contract and payment thereof.

I (We) hereby certify that if the contract is awarded to our firm, partnership or corporation that no member of the elected governing body of Frederick County, or members of his or her immediate family including spouse, parents or children, or any person representing or purporting to represent an member or members of the elected governing body, has received or has been promised, directly or indirectly, any financial benefit, by way of fee, commission, finder's fee, political contribution, or any similar form of remuneration on account of the acts of awarding and/or executing this contract.

HANDWRITTEN SIGNATURE OF AUTHORIZED PRINCIPAL(S):

NAME: _____

TITLE: _____

NAME OF FIRM/PARTNERSHIP/CORPORATION:

DATE: _____

ATTACHMENT

CERTIFICATION OF COMPLIANCE
With Frederick County Purchasing Regulation 1-2-36,
Hiring of Illegal Aliens Prohibited for Performance of County Work

I, _____, hereby certify or attest that:
(Name)

1. I am the owner or authorized representative of _____;
(Name of Firm)
2. In compliance with Frederick County Purchasing Regulation 1-2-36, and as a contractual requirement of doing business with Frederick County Government, my firm and all of my firm's subcontractors shall only employ individuals legally authorized to work within the United States of America and within Frederick County, Maryland in the performance of work under this contract.;
3. Compliance with Frederick County Purchasing Regulation 1-2-36 is a material contractual obligation and that breach of this obligation could result in contract termination in addition to, and not in lieu of, any and all other remedies available to Frederick County Government and any and all other damages for which my firm might be liable; and
4. Nothing within Frederick County Purchasing Regulations requires Frederick County Government to elect to terminate a contract for default to the exclusion of any other remedy.

By my signature below, I swear or affirm under penalties of perjury that the contents of this Certification of Compliance are true to the best of my knowledge, information and belief.

(Signature)

(Date)

Print Name of Signatory: _____

Print Title of Signatory: _____

Employer Name: _____

Employer Address: _____

Telephone Number: _____

Email Address: _____

VALVE SPEC. SHEETS

ADDENDUM 1
1A-UG9-CP

EIN JOB SPEC SHEET

CUSTOMER: HENRY PRATT COMPANY
P.O. NO: A25266

EIN JOB NO: 17731A
REV: 000

FORM BY: HEL 08/11/88
FORM BY: 00/00/00

COMPUTER BY: DH 08/19/88
GENERATED: 08/19/88

P.O. ITEM NO: 1

ACTUATOR DATA

QUANTITY: 4
EIN MODEL NO: MCG8-3
OUTLINE DWG: 72216
INSTRUCTION: MANUAL E987
ENCLOSURE: WEATHERPROOF- NEMA 4
OPEN/CLOSE SECONDS: 60 SEC
TORQUE SPRING: P3439-5 WHITE
MOTOR GEARS: 21/43/16/32 P3337-0
LUBRICATION: TEXACO MULTIFAX EPO
COVER HDW: P3463-1A
NAMEPLATE: 34565-3
EIN SERIAL NO(S): 110779-110782

MOTOR DATA

HORSEPOWER: 1/4
RPM: 1725
VOLTS: 460 VA-C
HERTZ: 60
PHASE: THREE
AMPS (RUN): 0.85
AMPS (L/R): 2.70
MOTOR PART NO.: 9000605444
SPACE HEATER: 10K OHM, 40 WATT

VALVE INFORMATION

MANUFACTURER: HPCO
SIZE: 6
TYPE: BFV
TORQUE(FT-LB): 93

VALVE STEM DATA

DIMENSIONS-INCHES
DIAMETER (INCHES): 1.000
KEY: (1) 0.250 X 0.250
TURNS-FULL STROKE: .250
STROKE TIME (SEC): 60
OUTPUT ROTATION: CW TO CLOSE

HCP ELECTRICAL DATA

WIRING DIAGRAM: 17731
POWER VOLTAGE: 460 VA-C, 3 PHASE, 60 HZ
CONTROL VOLTAGE: 115 VA-C (SOURCE AT SITE)
SPACE HEATER: 650 OHM, 40W, P/N 2024
LIMIT SWITCHES: LSC & LSO (2 NO, 2 NC EA)
L/S GEAR BOX: 2T-30, P/N 1034-1
TORQUE SWITCHES: TSC & TSO, P/N 1050
T/S SHAFT ROTATES: CW TO CLOSE
VALVE TO: CLOSE SEAT BY POSITION
N NUMBER: 0022
HCP FRAME: 2000 MINI FRAME

ADDITIONAL ACCESSORIES, SERVICES & NOTES:

CUSTOMER TAG NO(S): BFV-13 SURFACE WASH SUPPLY

NOTES: UNITS REQUIRE REMOTE MOUNT SCRS W/CIRC.
BREAKER, REVERS, STARTER, O/L RELAY(W/RESET
BUTTON), TRANSFORMER, 3 PUSHBUTTONS, 3 POS.
SELECT. SWITCH WIRED PER 17731-2, PRATT
SHOP ORDER: 083661 03, P/N 1993401.

VALVE ADAPTION: NOT ORDERED FROM EIN

BORE & KEY BUSHING: BY EIN (SHIP 35117-016 WITH ACTUATOR)
SCH: ENCLOSURE SHIPPED SEPARATE FOR FIELD WIRING

EIN JOB SPEC SHEET

CUSTOMER: HENRY PRATT COMPANY
P.O. NO: A25266

EIN JOB NO: 17731B
REV: ORG

FORM BY: HEL 08/11/88
FORM BY: 00/00/00

COMPUTER BY: DH 08/19/88
GENERATED: 08/19/88

P.O. ITEM NO: 2

ACTUATOR DATA

QUANTITY: 4
EIN MODEL NO: HBCB-3
OUTLINE DWG: 72216
INSTRUCTION: MANUAL E987
ENCLOSURE: WEATHERPROOF- NEHA 4
OPEN/CLOSE SECONDS: 90 SEC
TORQUE SPRING: P3439-4 RED
MOTOR GEARS: 21/43/12/36 P3337-C
LUBRICATION: TEXACO MULTIFAK EPD
COVER HWM: P3463-1A
NAMEPLATE: 34565-3
EIN SERIAL NO(S): 110783-110786

MOTOR DATA

HORSEPOWER: 1/16
RPM: 1725
VOLTS: 460 VA-C
HERTZ: 60
PHASE: THREE
AMPS (RUN): 0.50
AMPS (L/R): 1.60
MOTOR PART NO.: 9000605565
SPACE HEATER: 10K OHM, 40 WATT

VALVE INFORMATION

MANUFACTURER: HPCD
SIZE: 12
TYPE: BFV
TORQUE (FT-LB): 397

VALVE STEM DATA

DIMENSIONS-INCHES
DIAMETER (INCHES): 1.500
KEY: (1) 0.375 X 0.375
TURNS-FULL STROKE: 250
STROKE TIME (SEC): 90
OUTPUT ROTATION: CW TO CLOSE

HCP ELECTRICAL DATA

WIRING DIAGRAM: 17731-1
POWER VOLTAGE: 460 VA-C, 3 PHASE, 60
CONTROL VOLTAGE: 115 VA-C (SOURCE AT S)
SPACE HEATER: 850 OHM, 40W, P/N 202
LIMIT SWITCHES: LSC & LSO (2 NO, 2 NC
L/S GEAR BOX: 2T-30, P/N 1034-1
TORQUE SWITCHES: TSC & TSO, P/N 1050
T/S SHAFT ROTATES: CW TO CLOSE
VALVE TO CLOSE SEAT BY POSITION
POTENTIOMETER: 1000 OHM, P/N 2154-1
N NUMBER: 0022
CURRENT SOURCE: P/N 2065-1 (4-20 MA)
PROCESS SIGNAL: 4-20 MILLIAMPS
HCP FRAME: 2000 FULL FRAME

ADDITIONAL ACCESSORIES, SERVICES & NOTES:

CUSTOMER TAG NO(S): BFV-3 FILTER EFFLUENT
NOTES: UNITS REQUIRE REMOTE MOUNT SCMS W/CIRC,
BREAKER, REVERS. STARTER, O/L RELAY (W/RESET
BUTTON), TRANSFORMER, 2 PUSHBUTTONS, 3 POS.
SELECT. SWITCH WIRED PER 17731-3, PRATT
SHOP ORDER# 083661 05, P/N 1993424.
VALVE ADAPTION: NOT ORDERED FROM EIN
BORE & KEY BUSHING: BY EIN (SHIP 35117-048 WITH ACTUATOR)
SCH: ENCLOSURE SHIPPED SEPARATE FOR FIELD WIRING

EIN JOB SPEC SHEET

CUSTOMER: HENRY PRATT COMPANY
P.O. NO: A25266

EIN JOB NO: 17731D
REV: ORG

FORM BY: HEL 08/11/88
FORM BY: 00/00/00

COMPUTER BY: DN 08/19/88
GENERATED: 08/19/88

P.O. ITEM NO: 4

ACTUATOR DATA

QUANTITY: 4
EIN MODEL NO: HCG8-3
OUTLINE DWG: 72216
INSTRUCTION: MANUAL E987
ENCLOSURE: WEATHERPROOF- NEMA 4
OPEN/CLOSE SECONDS: 60 SEC
TORQUE SPRING: P3439-5 WHITE
MOTOR GEARS: 21/43/16/32 P3337-6
LUBRICATION: TEXACO MULTIFAK EPD
COVER HDW: P3463-1A
NAMEPLATE: 34565-3
EIN SERIAL NO(S): 110788-110791

MOTOR DATA

HORSEPOWER: 1/4
RPM: 1725
VOLTS: 460 VA-C
HERTZ: 60
PHASE: THREE
AMPS (RUN): 0.85
AMPS (L/R): 2.70
MOTOR PART NO: 1 9000605444
SPACE HEATER: 10K OHM, 40 WATT

VALVE INFORMATION

MANUFACTURER: HPCO
SIZE: 18
TYPE: BFV
TORQUE (FT-LB): 658

VALVE STEM DATA

DIMENSIONS-INCHES
DIAMETER (INCHES): 2.250
KEY: (1) 0.625 X 0.625
TURNS-FULL STROKE: .250
STROKE TIME (SEC): 60
OUTPUT ROTATION: CW TO CLOSE

HCP ELECTRICAL DATA

WIRING DIAGRAM: 17731
POWER VOLTAGE: 460 VA-C, 3 PHASE, 60 HZ
CONTROL VOLTAGE: 115 VA-C (SOURCE AT SITE)
SPACE HEATER: 650 OHM, 40W, P/N 2024
LIMIT SWITCHES: LSC & LSD (2 NO, 2 NC EA)
L/S GEAR BOX: 2T-30, P/N 1034-1
TORQUE SWITCHES: TSC & TSD, P/N 1050
T/S SHAFT ROTATES: CW TO CLOSE
VALVE TO: CLOSE SEAT BY POSITION
N NUMBER: 0022
HCP FRAME: 2000 MINI FRAME

ADDITIONAL ACCESSORIES, SERVICES & NOTES:

CUSTOMER TAG NO(S): BFV-2 FILTER INFLUENT

NOTES: UNITS REQUIRE REMOTE MOUNT SCMS W/CIRC,
BREAKER, REVERS. STARTER, O/L RELAY (W/RESET
BUTTON), TRANSFORMER, 3 PUSHBUTTONS, 3 POS.
SELECT. SWITCH WIRED PER 17731-2. PRATT
SHOP ORDER: 083661 07, P/N 1993447.

VALVE ADAPTION: NOT ORDERED FROM EIN

BORE & KEY BUSHING: BY EIN (SHIP 35117-079 WITH ACTUATOR)

SCM: ENCLOSURE SHIPPED SEPARATE FOR FIELD WIRING

EIM JOB SPEC SHEET

CUSTOMER: HENRY PRATT COMPANY
P.O. NO: A25266

EIM JOB NO: 17731E
REV: 080

FORM BY: HEL 08/11/88
FORM BY: 00/00/00

COMPUTER BY: DH 08/19/88
GENERATED: 08/19/88

P.O. ITEM NO: 5

ACTUATOR DATA

QUANTITY: 4
EIM MODEL NO: MCG8-3
OUTLINE DWG: 72216
INSTRUCTION: MANUAL E987
ENCLOSURE: WEATHERPROOF- NEMA 4
OPEN/CLOSE SECONDS: 60 SEC
TORQUE SPRING: P3439-5 WHITE
MOTOR GEAR: 21/43/16/32 P3337-8
LUBRICATION: TEXACO MULTIFAK EPO
COVER HDW: P3463-1A
NAMEPLATE: 34565-3
EIM SERIAL NO(S): 110792-110795

MOTOR DATA

HORSEPOWER: 1/4
RPM: 1725
VOLTS: 460 VA-C
HERTZ: 60
PHASE: THREE
AMPS (RUN): 0.85
AMPS (L/R): 2.70
MOTOR PART NO.: 9000605444
SPACE HEATER: 10K OHM, 40 WATT

VALVE INFORMATION

MANUFACTURER: HPCD
SIZE: 20
TYPE: BFV
TORQUE (FT-LB): 840

VALVE STEM DATA

DIMENSIONS-INCHES
DIAMETER (INCHES): 2.500
KEY: (1) 0.625 X 0.625
TURNS-FULL STROKE: 250
STROKE TIME (SEC): 60
OUTPUT ROTATION: CW TO CLOSE

HCP ELECTRICAL DATA

WIRING DIAGRAM: 17731
POWER VOLTAGE: 460 VA-C, 3 PHASE, 60
CONTROL VOLTAGE: 115 VA-C (SOURCE AT SI)
SPACE HEATER: 650 OHM, 40W, P/N 202-
LIMIT SWITCHES: LSC & LSO (2 NO, 2 NC
L/S GEAR BOX: 2T-3G, P/N 1034-1
TORQUE SWITCHES: TSC & TSD, P/N 1050
T/S SHAFT ROTATES: CW TO CLOSE
VALVE TO: CLOSE SEAT BY POSITION
N NUMBER: 0022
HCP FRAME: 2000 MINI FRAME

ADDITIONAL ACCESSORIES, SERVICES & NOTES:

CUSTOMER TAG NO(S): BFV-5 WASH WATER SUPPLY

NOTES: UNITS REQUIRE REMOTE MOUNT SCNS W/CIRC.
BREAKER, REVERS, STARTER, O/L RELAY (W/RESET
BUTTON), TRANSFORMER, 3 PUSHBUTTONS, 3 POS.
SELECT. SWITCH WIRED PER 17731-2. PRATT
SHOP ORDER# 083661 08, P/N 1993476.

VALVE ADAPTION: NOT ORDERED FROM EIM
BORE & KEY BUSHING: BY EIM (SHIP 35117-095 WITH ACTUATOR)
SCN: ENCLOSURE SHIPPED SEPARATE FOR FIELD WIRING

EIM JOB SPEC SHEET

CUSTOMER: HENRY PRATT COMPANY
P.O. NO: A25266

EIM JOB NO: 177310
REV: 080

FORM BY: HEL 08/11/88
FORM BY: 00/00/00

COMPUTER BY: DM 08/19/88
GENERATED: 08/19/88

P.O. ITEM NO: 7

ACTUATOR DATA

QUANTITY: 1
EIM MODEL NO: M8CB-3
OUTLINE DWG: 72216
INSTRUCTION: MANUAL E987
ENCLOSURE: WEATHERPROOF- NEMA 4
OPEN/CLOSE SECONDS: 90 SEC
TORQUE SPRING: P3439-4 RED
MOTOR GEARS: 21/43/12/36 P3337-C
LUBRICATION: TEXACO MULTIFAK EPO
COVER HDW: P3463-1A
NAMEPLATE: 34565-3
EIM SERIAL NO(S): 110800

MOTOR DATA

HORSEPOWER: 1/16
RPM: 1725
VOLTS: 460 VA-C
HERTZ: 60
PHASE: THREE
AMPS (RUN): 0.50
AMPS (L/R): 1.60
MOTOR PART NO.: 9000605565
SPACE HEATER: 10K OHM, 40 WATT

VALVE INFORMATION

MANUFACTURER: HPCO
SIZE: 20
TYPE: BFV
TORQUE (FT-LB): 840

VALVE STEM DATA

DIMENSIONS-INCHES
DIAMETER (INCHES): 2.500
KEY: (1) 0.625 X 0.625
TURNS-FULL STROKE: .250
STROKE TIME (SEC): 90
OUTPUT ROTATION: CW TO CLOSE

HCP ELECTRICAL DATA

WIRING DIAGRAM: 17731
POWER VOLTAGE: 460 VA-C, 3 PHASE, 60 Hz
CONTROL VOLTAGE: 115 VA-C (SOURCE AT SIT)
SPACE HEATER: 650 OHM, 40W, P/N 2024
LIMIT SWITCHES: LSC & LSD (2 NO, 2 NC E)
L/S GEAR BOX: 2T-30, P/N 1034-1
TORQUE SWITCHES: TSC & TSD, P/N 1050
T/S SHAFT ROTATES: CW TO CLOSE
VALVE TO: CLOSE SEAT BY POSITION
N NUMBER: 0022
HCP FRAME: 2000 MINI FRAME

ADDITIONAL ACCESSORIES, SERVICES & NOTES:

CUSTOMER TAG NO(S): BFV-4 WASH WATER SUPPLY
NOTES: UNITS REQUIRE REMOTE MOUNT SCNS W/CIRC.
BREAKER, REVERS. STARTER, O/L RELAY (W/RESET
BUTTON), TRANSFORMER, 2 PUSHBUTTONS, 3 POS;
SELECT. SWITCH WIRED PER 17731-3, PRATT
SHOP ORDER: 083661 09, P/N 1993499.
VALVE ADAPTION: NOT ORDERED FROM EIM
BORE & KEY BUSHING: BY EIM (SHIP 35117-095 WITH ACTUATOR)
SCN: ENCLOSURE SHIPPED SEPARATE FOR FIELD WIRING